THE

September, 1960

CHEMIST

VOLUME XXXVII



NUMBER 9



Dr. W. S. Guthmann, F.A.I.C.

Explains why scientific education should be supplemented by practical courses. (See page 333)

TOTALLY NEW!



Lighter! Stronger! Safer! Exclusive new expanded polystyrene case for **B**&**A**[®] "C.P." Acids!

AN EXCLUSIVE DEVELOPMENT of General Chemical, this new "one-way" case holds four 5-pint "C.P." acid bottles in contoured pockets formed of shock-resistant polystyrene.

SMALLER! LIGHTER! Tare weight of this substantially smaller case is less than 11 lbs. with empty bottles.

EASIER TO HANDLE! Finger grips make case easy to handle. Cases stack securely with interlocking top and bottom. SAFER! The new polystyrene case is chemical and weather resistant. Form-

fitted pockets protect bottles.

STRONGER! The new case, far stronger than other "one-way" cases now in use, has met the most stringent ICC drop test requirements.

ORDER NOW! These new units are now ready for shipment from General Chemical's B&A distributing points coast to coast. More than a year of intensive research and testing prove this new case superior to any other type of "shipper." For information phone or write your nearest B&A office.



BAKER & ADAMSON® "C. P." ACIDS

GENERAL CHEMICAL DIVISION

40 Rector Street, New York 6, N. Y.

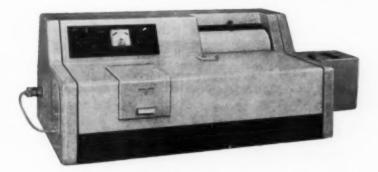
Offices: Albany* • Atlanta* • Baltimore* • Birmingham* • Boston* • Bridgeport* • Buffalo* • Charlotte* Chicago* • Cincinnati • Cleveland* • Denver* • Detroit* • Houston* • Jacksonville • Kalamazoo Los Angeles* • Milwaukee* • Minneapolis • New York* • Philadelphia* • Pittsburgh* • Portland (Ore.) Providence* • St. Louis* • San Francisco* • Seattle • Kennewick*, Vancouver, Yakima (Wash.)

New ...

B. & L. Visible and Ultraviolet

RECORDING SPECTROPHOTOMETER

high resolution-band width 0.5 or 0.2 mmu



Linear Wavelength-Records directly in either absorbance or percent transmission, with linear wavelength throughout the entire range of 200 to 650 mmu.

High resolution-Because the instrument utilizes two precision gratings which provide linear dispersion throughout the entire range, a constant band width of 0.5 mmu is maintained without slit adjustment. Also available with 0.2 mmu slit.

Electronic scanning speed control results in rapid recording without loss of fine structure or overshooting. As regularly supplied, the instrument records percent transmission, but it can be quickly changed to record linear absorbance by a simple substitution of gears.

The built-in mercury source provides means for checking calibration at all times. The instrument is streamlined and occupies a space of only 36 x 22 inches.

Accessories—Include a reflectance attachment for precise evaluation of paints, ceramics, textiles, paper, inks, etc.; soon to be available are accessories for spectrofluorescence and for near infrared.

Charts are 17 x 11 inches for convenient filing and are equally useful in quantitative or qualitative work.

Visible Automatic Recording Spectrophotometer, range 320 to 650 mmu, with

Ultraviolet-Visible Automatic Recording Spectrophotometer, range 200 to 650 mmu, with photomultiplier, hydrogen and tungsten light sources, mercury calibration lamp, silica cuvettes, chart paper, ink, etc.; for 115 volts, 60 cycles a.c. . . . NOTE-Both models are available on special order with slits for 0.2 mmu resolution at \$300.00 additional.

Descriptive bulletin sent upon request



ARTHUR H. THOMAS COMPANY

More and more laboratories rely on Thomas / Laboratory Apparatus and Reagents

VINE ST. AT 3RD . PHILADELPHIA S. PA.

Telephone Service: Direct private wire New York to Philadelphia (no tell charge) REctor 2-5035

The CHEMIST

Reg. U. S. Pat. Off,

Publication of

THE AMERICAN INSTITUTE OF CHEMISTS, INC.

60 East 42nd street, New York 17, N. Y.

Entered as second class matter April 8, 1936 at the Post Office at New York, N. Y., under Act of August 24, 1912. Second class postage paid at New York, N. Y. Issued monthly.

Subscription price, \$3.00 a year to Members, \$4.00 to Non-Members. Single copy, this issue, \$0.35. Copyright, 1960, by The American Institute of Chemists, Inc.

Vol. XXXVII

September, 1960

Number 9

THE AMERICAN INSTITUTE OF CHEMISTS

Council

Officers and Directors:

President, Dr. Milton Harris President-elect, Dr. Johan A. Bjorksten Secretary, John Kotrady Treasurer, Dr. F. A. Hessel Chairman of the Board, Dr. W. E. Kuhn

Councilors-at-Large and Directors:

Dr. R. P. Dinsmore Dr. S. D. Kirkpatrick Dr. L. A. Hall Dr. John H. Nair Dr. W. E. Hanford Dr. L. H. Reyerson Dr. D. B. Keyes Dr. W. J. Sparks Dr. Max Tishler

Councilors:

Dr. A. M. Buswell, Florida Chapter Dr. G. M. Cunningham, Western Chapter Dr. E. J. Durham, New York Chapter Dr. J. H. Dusenbury, New Jersey Chapter Dr. James L. Jezl, Philadelphia Chapter H. A. Levey, Louisiana Chapter Lyle J. Mahar, Niagara Chapter Dr. O. E. May, Piedmont Chapter Dr. Clem O. Miller, Washington Chapter Dr. Emil Ott, Past President Dr. George F. Rugar, Ohio Chapter Bernard E. Schaar, Chicago Chapter G. H. Taft, New England Chapter Dr. Walter W. Thomas, Delaware Chapter Emerson Venable, Pittsburgh Chapter Dr. W. S. Wagner, Beaver Falls Chapter Dr. A. H. Warth, Baltimore Chapter Bernard Weiner, Midwest Chapter Martin B. Williams, Alabama Chapter Dr. J. L. Wilson, Twin City Chapter

THE CHEMIST

Editor, V. F. Kimball

Advisory Board:

Dr. Joseph F. Abere Lawrence H. Flett D. H. Killeffer James W. Perry Bernard E. Schaar Dr. William J. Sparks P. J. Wood Dr. A. C. Zettlemoyer

Contributing Editors:

M. R. Bhagwat D. H. Killeffer Dr. Frederick G. Sawyer Donald Slavin Florence E. Wall Martin B. Williams

Department Editors:

Dr. Ed. F. Degering, Condensates
Doris Eager, Opportunities
Richard L. Moore, Public Relations
Dr. Rudolph Seiden,
Chemical Books Abroad

Deadlines for THE CHEMIST: For the October issue the deadline is September 15.

THE AMERICAN INSTITUTE OF CHEMISTS does not necessarily endorse any of the facts or opinions advanced in articles which appear in THE CHEMIST.

IN THIS ISSUE

Editorial:	
The Effective Chapter Program	325
Special AIC Announcements	326
Western AIC Chapter to Honor Roger Truesdail	
AIC Social Hour in New York	
New York Chapter Selects Theme for Meetings	
Liaison Representative from ACS to AIC	
Addition to Central Planning Committee	
To National Council Representatives	
Research on Research, Bruce S. Old	327
A Chemical Executive Looks at Chemical & Chemical Engineering Education, Dr. W. S. Guthmann, F.A.I.C.	
Committee on Clinical Chemistry—Annual Report	339
Friends Departed	342
Communications:	
On "The Path to Professionalism"	344
Responses to "I Must Vigorously Protest"	345
Comment on The Chemist	347
For Your Library	347
About AIC Members	350
Professional Appointments Inside	Back Cover

TO COME IN OCTOBER

"Are you realizing your full professional potential?" Robert F. Moore, vice president, Richardson, Bellows, Henry & Co., Inc., New York, N. Y. (Management consultants), offers "Mid-Career Review," as a guide. William Onsken, Jr., a member of the staff of the same firm, supplements this with "How to Set Personal Goals." Both papers were presented before the New York AIC Chapter . . . Scientists are shown ways to participate more fully in community and government activities by Andrew H. Hines, Jr., director, Area Development, Florida Power Corp., St. Petersburg, Fla. His paper was presented at a meeting of the Florida Chapter.

Advertisers Render a Service to You

Allied Chemical Corp., General	Arthur D. Little, Inc349
Chemical CoInside Front Cover	Nopco Chemical Co337
Bios Laboratories352	Phoenix Chemical Laboratories
Commercial Solvents Corporation324	Robinette Research Laboratories338
LaWall & Harrisson343	Foster D. Snell, Inc. 341
The Lento Press349	Arthur H. Thomas Co321
U. S. Stoneware	Outside Back Cover



All you need-at maximum speed! Commercial Solvents is a prime source of first-grade chemicals to serve every industrial, agricultural, and animal nutrition purpose. Be sure of quality. Be sure of service. Be sure of delivery.

Call the Commercial Solvents Corporation office nearest you!

INDUSTRIAL

Methanol . Ethyl Alcohol . Ammonia · Butanol · Formaldehyde 2-Nitropropane - Hydroxylamines Tributyl Phosphate - AMP - Methylamines-Pharmaceutical Chemicals



AGRICULTURAL

Hi-Da Ammonium Nitrate Fertilizer Ammonia, Anhydrous and Aqua Nitrogen Solutions

ANIMAL NUTRITION

Baciferme Zinc Bacitracin Antibiotic Feed Supplements - Choline Chloride - Riboflavin Supplements Vitamin B11 Supplements

COMMERCIAL SOLVENTS CORPORATION

EXECUTIVE HEADQUARTERS: 260 Madison Avenue, New York 16, N. Y. • OFFICES IN PRINCIPAL CITIES PLANTS: Sterlington, La. • Peoria, III. • Terre Haute, Ind. • Agnew, Calif. • Newark, N. J. • Harvey, La.

EDITORIAL

The Effective Chapter Program

THE ability of AIC Chapters to analyze local situations and to set up effective programs to benefit both the community and the profession has long been demonstrated. We quickly recall the magnificent aid to the State Teachers Colleges given by the New Jersey Chapter; the improvement in Civil Service Classifications for chemists achieved by the Washington Chapter; the advisory service offered to prospective industrial employees by the Chicago Chapter: the betterment of Municipal Civil Service salaries for chemists attained by the New York Chapter; the program of professional objectives chosen by the Delaware Chapter; the initiation by the Alabama Chapter of the national project which later improved the status of all clinical chemists . . . There are many others.

The most recently announced Chapter program of this type is that being undertaken by the Florida Chapter. Specifically, D. H. Killeffer, chairman of the Chapter, reports that: "What we propose to do about these problems is:

"(1) To work with such schools as are within reach of each of us and to cooperate with teachers and students so far as reasonable on a purely local level, whether it be in high schools, junior colleges or fuli colleges; and

"(2) To work with the Governor's Industrial Development Board, local boards and other groups that may wish the kind of help our members can give. In this connection, we have already accepted an invitation to join the South Florida Technical Societies Council, a Miami group organized for this purpose on an inter-society basis.

"To implement our program, our first need is for a roster of the people and skills that we have available. This should show each member's:

"(1) Availability;
"(2) Specialized knowledge;

"(3) Experience, industrial and/or teaching.

"The Chapter members have been requested to supply this information about themselves, which will enable the Chapter officers to develop a specific roster on which they can approach and help interested groups."

We commend the Florida Chapter on its program, so specifically adapted to the needs of the local Chapter area, which as it progresses will benefit both the community and the profession.

The key to successful Chapter programs is to analyze local problems and provide the initiative needed to solve them.

[&]quot;The two most pressing problems facing Florida today lie in

[&]quot;(1) Education, where numbers of students and potential students at all levels are taxing facilities, particularly teaching staffs; and

[&]quot;(2) Industry, to utilize the specialized skills of our large numbers of senior citizens, to aid in 'development work."

Special AIC Announcements

Western AIC Chapter to Honor Roger Truesdail

Dr. Roger W. Truesdail, president of Truesdail Laboratories, Los Angeles 65, California, will receive the Honor Scroll Award of the Western AIC Chapter, in recognition of his professional activities and his leadership in industrial analytical chemistry. He is a former representative from the Western Chapter to the National AIC Council. The presentation will be made at a dinner meeting at the Los Angeles Athletic Club, 431 W. 7th St., Los Angeles, Calif., on September 28.

AIC Social Hour in New York

A Social Hour will be held for members of the AIC and their friends during the ACS convention in New York. The place is the Hotel Roosevelt, Madison Avenue at 45th St., in the Vanderbilt Suite 3, 4, and 5. The time is 5:30 P.M., Monday, September 12.

New York Chapter Selects Theme for Meetings

The New York Chapter has selected the theme, "What Every Chemist Should Know About the Chemical Business," to be developed at meetings during the fiscal year. On September 29, Carl Setterstrom, assistant to the president, Avison Corp., Philadelphia, Pa., will speak on "The Successful Project." "Purchasing—its Import-

<€

ance to the Project" will be the title of a talk on November 16 by George Polzer, executive vice president, Ultra Chemical Works, Paterson, N. J. "Marketing" is the subject to be discussed by Robert Kampschulte, vice president, sales, Celanese Chemical Co., New York, N. Y., on January 19. "Chemical Patent Procedure" is the subject for the April 20 meeting.

Liaison Representative from ACS to AIC

Dr. Matthew W. Miller, Technical Director, Coated Abrasive Division, Research & Development, Minnesota Mining & Manufacturing Co., St. Paul, Minn., has been appointed by the American Chemical Society as liaison representative from the Committee on Professional Relations and Status of the ACS to the National Council of the AIC.

Addition to Central Planning Committee

Dr. Max Bender, F.A.I.C., American Cyanamid Company, Bound Brook, N. J., has been added to the Central Planning Committee to serve as its secretary. Dr. Max Tishler is chairman of the Committee.

To National Council Representatives

A copy of the manual, "National Council Operations," is available on request to the Secretary, The American Institute of Chemists, 60 East 42nd Street, New York 17, N. Y.

Research on Research

Bruce S. Old

Vice President, Arthur D. Little, Inc., Cambridge 40, Mass.
(Presented at the 37th AIC Annual Meeting, Minneapolis, Minn., May 13, 1960)

NE would logically assume that much work had been performed in the area of research on research. The general public must think that since the queer, white-coated, test tube toting, poverty stricken scientist researches on everything, he certainly must include himself and his work as a subject for study. For some strange cason this is just not so-maybe the scientist is afraid of what he will uncover. At any rate, it is much easier just to say that research on research is difficult and will probably be unproductive, and let it go at that. Sometimes I wish we had . . . but let us dive into these cold, uncharted and unclassified waters.

An Initiation

We stumbled into research on research as the result of an exchange between the Naval Research Advisory Committee and the Secretary of the Navy. The former recommended an increase in the Navy effort in basic research. The latter replied that this was a peachy idea, but please tell him how much was proper. To answer in any quantitative way so simple and yet so difficult a question obviously required detailed study. The Committee decided a contract should be established outside the Navy Department to undertake research in this field and report back to the Commit-



BRUCE S. OLD

tee. It was our fortune to be awarded this contract.

The first four months of our study were discouraging. Much of our time was taken up in education on the Navy and in meetings with people who were curious to find out how we were going to get on with so esoteric a study. And about half the time of these meetings was wasted by individuals whose favorite indoor sport was proving that no good definition of basic research existed. From this they readily concluded that we looked pretty foolish studying something, not knowing what the something was. There being a certain amount of logic in this, we developed a real distaste for semantics on basic research and resolved to find an answer to the dilemma.

This we were able to do very satisfactorily, and is one contribution which came out of the project. We postulated that in any field of science there is at least one scientific journal which the experts in the field would agree publishes the most basic work -the journal in which top people want their articles to appear. To find out how much basic work was going on, one would only have to look at the literature, since essentially all basic research is published. We then asked many laboratory heads, who should know, how much basic research they are doing, basic research being defined as follows:

Basic research is that type of research which is directed toward increase of knowledge in science. It is research where the primary aim of the investigator is a fuller knowledge or understanding of the subject under study.

By counting papers we were able to check the laboratory heads' estimates quite closely. Also we ran a correlation on a nation-wide basis between the number of people said to be doing basic research in Government, industry and university laboratories in 1953-54, and the number of papers originating from each source in 1957 (to allow some delay for publication) appearing in 13 selected scientific journals. A sufficiently strong correlation was obtained between numbers of basic research workers and numbers of papers to permit the conclusion that the interpretation of the definition of basic research and policy with respect to freedom to publish is remarkably consistent nation-wide.

Armed with this important knowledge, it then became possible to collect with some confidence data from a number of sources for comparison of basic research policies and budgets with those of the Navy. Furthermore this technique of paper counting, also used by Fisher of the General Electric Co.(1), made it easy to check the validity of basic research data presented to us by any individual laboratory whenever questions arose.

No doubt the business of counting papers will be distasteful to a few who will bring up the matter of quality as well as quantity of papers. The best answer we can give to this is that the journal editors, reviewers and readers insist on quality in the top journals. All leading scientists questioned agreed to this as a general statement. To be sure there is a spectrum of importance of contribution, but it must be remembered that this is difficult to predict immediately. Actually all contributions are relevant in building toward the ultimate unity of the world of science.

Two other conclusions were drawn after our first four months of education. These were:

⁽¹⁾ J. C. Fisher, "Basic Research in Industry," Science 19 June 1959, Vol. 129 No. 3364, p. 1653.

- (1) In order for the final report of the study to have real utility it must explain the nature and role of basic research simply, briefly, and yet dramatically. While applied research and development results are trumpeted daily in the press, the role of basic research in bringing about technological advance is not well understood by the public.
- (2) For any one government department or industrial corporation there is probably an optimum division of effort in its research program between basic research and applied research and development to achieve maximum effectiveness consistent with its objectives.

To take care of the first point we conceived a series of diagrams we called schematic models. There were four types aimed at showing the following:

- (1) The manner in which, following the discovery of one significant new fact, a whole new field of technology evolves with time through basic research.
- (2) The dependence of technological innovations upon the acquisition of knowledge through basic research in many fields.
- (3) The explosive expansion of a new field through the influence and work of a basic research scientist and those inspired by his guidance or leadership.
- (4) The importance to the attainment of effective technological progress of establishing and maintaining close coupling between basic research and applied research and development.

The schematic models developed are

large color charts which were presented as fold-outs in the original report. (2) Judging from the requests we receive for copies, they represent a good beginning in presenting pictorially a case history story on the important role of basic research. It is a technique others may find useful.

The second point, a look at the quantification of basic research as a segment of the research process, was the real purpose of the study. To attack this we took two routes. One was to obtain the judgment of people experienced in the direction of research. The second was to attempt to develop a mathematical model of the research process.

The people whose judgment we sought were the directors of research of 33 top U. S. corporations. While this may appear at first thought to be a small sample, these men among them control the allocation of about one fifth of all the basic research funds of the nation. These men, who control the allocation of funds within an over-all research budget, have endeavored to evolve sound policies on the percentage devoted to basic research and to applied research and development. Over the decade between 1947 and 1957 it is interesting to note that almost all companies contacted increased the percentage of the

^{(2) &}quot;Basic Research in the Navy." Vol. I and Vol. II. Available through Mr. John C. Green, Office of Technical Director, Department of Commerce, Washington 25, D.C.

R and D budget devoted to basic research.

If one is largely involved in a high obsolescence rate industry, these increases become more striking. We selected for study what we rated to be the two best companies in each of five fast moving areas-chemicals, drugs, petroleum, electronics-communications, and materials. In 1947 these ten companies devoted about 10% of their R and D budget to basic research, whereas in 1957 they devoted a whopping 16%. Dollar figures confirm this aggressive attitude in that R and D budgets were increased threefold whereas basic research expenditures were increased by a factor of 4.5.

The way such budget figures are arrived at differ. Most of them are built up step by step through a project budget system and, therefore, depend to a large extent on the type of R and D staff, the ideas at hand, and the company objectives. However, as this process goes on over the years certain balances develop and staff changes are engineered. For example, one company stated that it has arrived at what it thinks is a nearly optimum split between basic research and applied research and development by studying the input of new ideas needed to initiate enough applied research projects, to select enough good bits to carry into the expensive development stage, to provide the new processes and products it needs for the planned company growth. Some look at it from the standpoint of the basic research staff needed for the company to obtain good coupling with the world effort in basic research in their fields of endeavor. Still others use their sharpest competition as a partial guide.

The percentage of budget devoted to applied research and to development varies in these companies from as low as 15% to as high as 75%. This depends a great deal on the type of industry—those who have to carry out expensive pilot plant work being higher on development.

The other approach of trying to arrive at some optimum division of a research budget through the development of a mathematical model of the research process proved to be novel and challenging. Interestingly, the basis for the model was submarine search theory developed during World War II, it being postulated that searching for new facts is a similar undertaking.

We can symbolize the research process by a two stage chemical reaction, where the first stage is finding facts and the second is applying them, as follows:

$$A \xrightarrow{k_1 E_1} B \xrightarrow{k_2 E_2} C$$

where A represents facts not yet discovered

where B represents facts discovered but not yet applied where C represents final applications

and where rate determining factors are

E₁ and E₂ representing the relative efforts put into each process k₁ and k₂ representing the relative ease with which facts can be discovered and applied

We were able to obtain data to test the model as further developed in only five cases and in these the ratio of k₁ and k₂ was about 2. This led to the conclusion that the fraction of effort which should be devoted to basic research in these cases is about 30%.

It now appears that the Navy will support additional work on the mathematical model in order that it may be further refined as to such matters as quality of personnel, combinatorial aspects of the applications process, and the collection of additional data from industry and government laboratories for testing the model.

Part of the original study also included looking at certain aspects of the manpower problem. The most interesting point uncovered was "death" rate of basic scientists. Assuming that most basic research is performed by those having doctors' degrees, we considered the publication rates of all physicists who obtained doctors' degrees in 1936, 1941, 1946 and 1951.

What we found was startling. Of these men almost 80% died in childbirth. By this we mean that the pain of bearing their theses was so great that they never published again. And of the remaining 20%, some 10% publish 80% of the papers. You chemists are a little more hardy in that about 30% survive the thesis publication. It would be interesting to determine whether only one in four or five men getting doctors' degrees are capable of continuing to make basic research contributions, or whether our American system entices them into more lucrative fields.

Our findings are essentially consistent with those of Shockley⁽³⁾ in that the creativity rate seems to vary among individuals in an exponential fashion.

Conclusions

The real purpose of this paper is to try to show that the field of research on research, heretofore almost completely ignored, is one worthy of some real attention. With research now a \$10 billion industry, we can no longer afford to overlook this activity. Both industry and the general public stand to gain from such work. If some members of The American Institute of Chemists will now join in the fray, then we will feel more than amply rewarded.

⁽³⁾ William Shockley, "On the Statistics of Individual Variations of Productivity in Research Laboratories." Proceedings of the IRE, Vol. 45, pp. 279-290, March 1957.

PHOENIX

CHEMICAL LABORATORY, INC.

Specialists in Petroleum Products

Chemical Tests . Physical Tests

Qualification Tests

3953 Shakespeare Avenue CHICAGO 47, ILL.

Foresight

It is fair to hold that the country that has the best chemists will in the long run be the most prosperous and the most powerful. It will have at the lowest cost the best food, the best manufactured materials, the fewest wastes and un-utilized forms of matter, the best guns, and the strongest explosives, the most resistant armour. Its inhabitants will make the best use of their country's resources: they will be the most healthy, and the most free from disease; they will oppose the least resistance to favorable evolution: they will be the most thrifty and the least dependent on other nations. The education of its people in chemistry and the physical sciences is the most paying investment a country can make. -Prof. Peter Townsend Austen (in 1896). Quoted by R. B. Fiske in a paper

Science Needs an Honest Representation

Industrielle, Paris, France, May 2, 1960

read before the Societe de Chimie

In our expanding universe, the need for knowledge is also expanding, and we aren't going to make much progress if we are going to spend too much of our time on committees discussing the need for more scientists. Personally, as I look around our world, I'm not at all sure that there isn't an even more pressing need for more statesmen, more philosophers, and more humanitarians of even higher stature.

If science needs anything, it is an honest representation. Science is not a pat answer, a patent medicine, or a path of roses. Science, whether it be governmental, academic, or industrial, is and always will be patient search and research. Truth cannot be bought, it must be found.

-Dr. Augustus B. Kinzel In accepting the Industrial Research Institute Medal, May 10, 1960

Average starting salaries for chemists and chemical engineers who were graduated from Lehigh University this June were \$475, and \$515, according to Everett A. Teal, director of placement and counseling at Lehigh.

Cornell University will organize a Materials Science Center to administer an Advanced Research Projects Agency contract under which it will receive \$6.1 million for the first four years. The number of professors in the Center will be increased from about 30 to 60 in the next 10 years.

Becco Chemical Division of Food Machinery & Chemical Corp., has moved its administrative and sales headquarters to 161 East 42nd St., New York 17, N. Y.

A Chemical Executive Looks at Chemical and Chemical Engineering Education

Dr. W. S. Guthmann, F.A.I.C.

Morton Chemical Co., 110 North Wacker Drive, Chicago 6, Illinois

(Presented at a joint meeting of the Twin Cities Chapter of the American Institute of Chemical Engineers, the Minnesota Section of the American Chemical Society, the Minnesota Industrial Chemists Forum, and the Twin City Chapter of the AIC, at Minneapolis, Minn., April 21, 1960.)

THE keynote of this paper lies in the statement that a chemist or chemical engineer has no right to complain about lack of professional status until he acts like a professional. Acting like a professional, in some of the older professions, such as medicine and law, includes the requirement that competent practitioners of that profession engage actively in the teaching of their fields of greatest competence. Too few of us chemists and chemical engineers do this, and from this point of view, I blame all of us, therefore, for many of the deficiencies of chemical and chemical engineering education. To put it in other terms, we should be more conscious of our responsibility to the community as a whole.

We must accept that, despite our competence, educational progress is necessarily slow because it takes so many years to judge the effects of any changes which might be made. This does not, however, excuse any unwillingness to experiment and to attempt constructive changes in the educational approach and philosophy.

A discussion of chemical and chemical engineering education could cover

a wide variety of subjects and could evoke so much discussion that many days could be devoted to it. For this reason, 2 will limit my discussion to only two points:

- (1) Educators and an evaluation of how well they are functioning, and
- (2) Industry and its responsibility to education. (I include here both people and organizations.)

I shall not discuss two other important components of our educational stew, namely, the student and the government—both state and federal, nor shall I discuss industry's support of fundamental research.

To be completely professional, I shall quote a few paragraphs of an article written by John Ivey, president of the Learning Resources Institute and former executive vice president of New York University, for a symposium in a recent issue of Saturday Review of Literature:

There is a lot wrong with American education that neither more money nor increased technology can cure.

But there are no problems that the courage, teamwork, and imagination of educators and citizens cannot deal with. For, in the final analysis, these are the truly typical American responses which have always converted our problems into opportunities and our challenges into conquests.

It is only natural and, if we approach the subject wisely, also healthy that one of our first reactions should be to suggest more money.

After all, one of the characteristics of this nation which has creditably distinguished it from others has been not only its willingness but, indeed, its eagerness to provide the financial resources—both public and private—for the support of its educational system. It has been at once our pride and the very germ of our democracy.

Of course, this nation must commit even more dollars to the education of its people; every census makes this a truism.

We all know money alone will not solve the problem.

Let us turn to educators. Unlike those of us who have spent our careers in industry, educators have seldom become sensitive to customer needs and reactions. That customer is industry. We learn in business that, if we do not adopt a policy declaring that the customer is usually right, we go out of business. Not so the educator. Despite the fact that 80% of the chemical and chemical engineering students go to industry, educators do not get the message, and again, I quote Dr. Ivey:

Today, in most schools and colleges, the teacher maintains the responsibility and initiative for the student's learning process.

Such a system requires that the teacher always do things to and for the student. The teacher becomes a sort of intellectual crutch. If the emphasis were shifted, the student would be guided as rapidly as possible toward a system of intellectual self-propulsion. This would produce the greatest latent teaching talent in the nation—the students themselves.

The modern teacher in the schools

is a combination clerk, secretary, baby sitter, and professional worker. In the teaching staff, there is very little differentiation of function. High professional competence is wasted on chores which could be performed by persons of much less training and experience.

Moving beyond high school, to the level of higher education, colleges and universities have the function of creating new knowledge, as well as helping students develop competence with existing knowledge.

Yet here again there is very little distinction in function for the great majority of faculty members. Like their counterparts in the schools, professors perform many functions that might well be assigned to individuals with less specialized training. In the academic community, teaching is undervalued and research productivity is given highest recognition in promotion and remuneration.

Two major changes need to be made in the concept of the teacher's job and his approach to it.

First, teaching as a profession should be distinguished from the mere process of voicing subject matter or ideas that someone else has packaged and distributed in some media of communication. The teacher must become a scientist and practitioner in human learning and development. His professional training must become no less rigorous than that of the physician; the practice of his profession, no less systematic. His use of modern technology and his responsibility for keeping up to date in his profession are as important in education as they are in medicine.

Second, no school or college should expect a teacher to perform any task that can be performed as well or better by modern technology; radio, television, films, and so on.

Dr. Ivey spoke in generalities. I should like to be more specific. The training for the Ph.D. in either chemistry or chemical engineering is based on the assumption, so far as research

is concerned, that research is research whether it be done in the university or in an industrial laboratory. This is strictly not true. Industrial research is frequently development work, and its prime aim is to make money, whereas academic research, presumably, is to seek after truth.

While the techniques may be similar, the approach is quite different, and many a Ph.D. suffers bitter disappointment which he could avoid with proper indoctrination and direction.

Further, without getting into the province of curriculum, it is my opinion that the approach to instruction of undergraduates is wrong. If the facts of business life are important, they should be included as a part of the approach to teaching. To illustrate this point. I gave a graduate course this last semester at Illinois Institute of Technology on "Chemical Engineering Economics." Not one of the fifteen students had previously learned to read a balance sheet, to analyze a profit and loss statement, to calculate cash flow or to recognize any of the criteria of profitability. They were seriously circumscribed in their work as chemical engineers and their advancement hampered because of lack of such knowledge.

Many companies perforce accept the job of training people for several years after they get out of school when much of this background and training could be given in school.

Do not construe from this that I propose turning our technical schools into trade schools. What I am proposing is that the fundamental disciplines should be taught with an approach and a breadth that make the graduate chemist and chemical engineer recognize factors other than purely scientific ones. He is thus better prepared for the job and, in supplying this broader point of view, the schools avoid stagnation. I decry the tendency of our chemical engineering departments to turn out design mathematicians, when we should turn out wellrounded chemical engineers. This could be done by having departments staffed, in part, with people who have practiced the profession, rather than solely staffed by theoreticians with no practical background. I do not want this statement misconstrued. I am talking about supplementation, rather than replacement, and I am the last to belittle the solid advances in research made by theoreticians. For example, I am aware that Dr. Amundson of the University of Minnesota just received a well-deserved honor, the ACS award in Industrial and Engineering Chemistry.

I merely wish to underline the fact that technical education must be broader than any simple concept, be it unit operations or systems. Engineers and chemists must learn how to apply their knowledge, and this requires more than a theoretical and mathematical background. I advocate common sense, which is often sadly lacking.

Some educators have already recognized this. For example, Dean Boelter of the UCLA School of Engineering insists on considering man as part of the engineering function, and all his students are required to take a course in psychology and business advancement.

How can we accomplish this improvement?

- By getting further communication between the teacher and the industry.
- (2) By using people from industry to supplement further—not to supplant—the professional teacher.
- (3) Make possible the promotion of good teachers on the basis of their teaching rather than solely on the basis of their research publication. I commend to you "The Academic Marketplace" by Caplow and McGee for a discouraging view of the academic promotion systems. The man in the gray flannel suit is quite an independent thinker by contrast with some of the "educators" described.
- (4) Get continuing communication both ways between industry and the schools.

Now I turn to industry. We have not been without our faults and, here again, I would like to quote authority. In the January 30, 1960, issue of Chemistry and Industry, reference is made to a book by Carter and Williams, "Science and Industry." Our British brethren take a hard look at what we have to do in this field. The gist of their report is:

To do the teaching that is necessary, industry must support teaching. It can't continually siphon the best people from the schools because of the higher salary but, rather, it must leave the talented teachers at the schools and subsidize their teaching efforts recognizing that they get 80% of the product.

This, in my opinion, is merely enlightened selfishness. Furthermore, people in industry should recognize that teaching is no harder than good salesmanship, and many of them should be willing to go back before they are too old to learn new techniques and do their stint in teaching. I would like to say, parenthically, that this is difficult and that, until the communication — which I mentioned above — is established, such people are more than likely to be resented and repulsed by the academic fraternity.

Part of this resentment must subside when it is recognized that industrial cooperation is highly essential both technically and financially and that communication cannot exist until the two groups talk the same language.

Lastly, I think that industry has been very remiss in not helping the faculties of the chemical and chemical engineering schools to define the needs. Look at the accrediting committees that are set up today. They are almost entirely academic in composition. This is like asking a sprinter participating in a race also to judge the race.

It is important that industry assist in setting standards, but it is also important for industry to recognize that those who set the standards should be at least as informed as those who have to implement them.

Industry should further recognize that, while it should tell what is wanted, it is not its function to tell how this end result is to be accomplished. This is the area in which the professional teacher should operate and should be given complete freedom.

You may differ with many of my points. I will be delighted to discuss these with you, for with such discussion can only come further enlightenment.

The Water Pollution Control Federation will hold its annual meeting at the Sheraton Hotel, Philadelphia, Pa., Oct. 2-6.

The American Association of Textile Chemists & Colorists will hold its convention and exhibit at the Sheraton Hotel, Philadelphia, Pa., Oct. 6-8, 1960.

The Society of Photographic Scientists and Engineers, Box 1609, Main Post Office, Washington, D.C., will meet Oct. 14-15, 1960, in cooperation with the Fifth International Congress on High Speed Photography, at the Shoreham Hotel, Washington, D.C.

The Electrochemical Society, Inc., will meet at the Shamrock Hotel, Houston, Texas, Oct. 9-13, 1960.

A SKILLED HAND IN CHEMISTRY ... AT WORK FOR YOU



- · Resin Emulsions · Latex Thickeners
- · Dispersants
- . Emulsifiers: Anionic, Cationic, Nonionic



NOPCO

60 Park Place Newark, N.J.

Harrison, N. J. . Richmond, Calif. . Cedartown, Ga. Boston, Mass. . Chicago, III. . London, Canada

The Fifth International Congress on Nutrition, sponsored by the International Union of Nutritional Sciences, will be held at the Sheraton Park and Shoreham Hotels, Washington, D.C., Sept. 1-7, 1960. An all-day symposium on "World Food Needs and Food Resources" will be featured.

ROBINETTE RESEARCH LABORATORIES, INC.

Industrial Research • Consultation Technical and Economic Surveys Product Development Chemical Market Research 16 East Lancaster Avenue

Ardmore, Pa. Tel. Midway 2-6457

Member Amer. Council Ind. Labs.

The Fiber Society, P.O. Box 405, Athens, Georgia, will meet at the Washington Hotel, Washington, D.C., Oct. 27-28, 1960.

The American Vacuum Society, Box 1282, Boston 9, Mass., will hold its 7th National Symposium at the Cleveland-Sheraton Hotel, Cleveland, Ohio, Oct. 12-14.

A symposium on the medical and biological aspects of the energies of space, sponsored by the School of Aviation Medicine, USAF Aerospace Medical Center (ATC), and arranged by the Southwest Research Institute, will be held, Oct. 24-26, 1960, at the Hilton Hotel, San Antonio, Texas.

Fisher Gaffin, F.A.I.C., chairman, New York Section, American Chemical Society, announces that plans for Chemical Exposition USA 1960, to be held in the Statler Hilton Hotel, New York, N. Y., during the 138th National ACS meeting, are nearing completion. Connolly & Leopold, Exhibit Office, Hotel Sheraton-Atlantic, New York 1, N. Y., are managing the exposition.

The Federation of Societies for Paint Technology is holding its annual meeting at the Sherman Hotel, Chicago, Ill., Oct. 29-Nov. 2. The Paint Industries' Show will be held concurrently.

The 1960 Eastern Analytical Symposium and Instrument Exhibit will be held at the New Yorker Hotel, New York, N. Y., Nov. 2-4. For information: C. Jedlicka, Lucius Pitkin Co., 47 Fulton St., New York, N. Y.

Powertron Ultrasonics Corp., Garden City, Long Island, N. Y., recently demonstrated a new method of ultrasonic cleaning, featuring its integral feedback transducer, which automatically adjusts phase and frequency for all conditions. The transducer was invented by Sidney Tomes, and developed in collaboration with Charles Leonhardt and William Blucke, who are all vice presidents of Powertron.

Fisher Scientific Co., Pittsburgh 19, Pa., has acquired Industrial Scientific, Inc., Texas supplier of laboratory equipment. Its three branches and a sales office become the new Southwestern Division of Fisher.

Enjay Company, Inc., has changed its name to Enjay Chemical Co., a Division of Humble Oil & Refining Co., 15 W. 51st St., New York 19, N. Y.

Committee on Clinical Chemistry

Annual Report 1959-60

(Presented at the 37th Annual AIC Meeting in Minneapolis, Minn.)

The Committee on Clinical Chemistry has encountered a busy year with certain positive accomplishments. As named on June 23, 1959 by AIC President, Dr. Wayne E. Kuhn, the Committee consists of the following Fellows of the Institute: Dr. Alfred H. Free, Dr. J. W. E. Harrisson, Dr. Warren M. Sperry, and Dr. Kurt M. Dubowski, Chairman. Considerable correspondence and numerous contacts with individual members of the Institute, practicing clinical chemists, and other persons and organizations interested in or concerned with clinical chemistry took place during the past year, and we believe the following highlights deserve brief mention.

(1) Since its founding in 1950 with the AIC as one of the three original sponsoring organizations, the American Board of Clinical Chemistry has included in its membershp one director elected from nominees of the Institute. Currently, the chairman of this Committee is serving as a member and director of the Board, also serving as Board Secretary-Treasurer.

(2) Following initial action at the May 7, 1959 Atlantic City meeting of the Institute, at which the matter was approved in principle, an Institute policy relating to autonomous practice by qualified clinical chemists was presented to this Committee for study and final wording. Upon its recommendation, the following Motion implementing this policy in support of clinical chemists was adopted at the October 1, 1959 meeting of the National Council:

MOTION

That the American Institute of Chemists go on record, and further make known its position to Federal, State and local legislative and executive bodies and other interested organizations and persons, that

 Chemists adequately qualified by education, experience and competence, including those chemists certified by the American Board of Clinical Chemistry, are qualified to engage in the independent professional practice of clinical chemistry and independently to direct, conduct, and operate clinical chemistry laboratories without the supervision of members of any other profession; and

The American Institute of Chemists, in the public interest, opposes the enactment of any laws, statutes, or regulations which would deny to such qualified clinical chemists the right independently to conduct clinical chemistry laboratories.

Action has been taken by the Committee and by national Institute officers, including the President, Dr. Kuhn, to advise interested parties and organizations of this stand by the Institute, and a number of favorable communications expressing appreciation for this support by the Institute have been received, including one from the American Association of Clinical Chemists. In particular, the American Medical Association was notified of our stand on this matter, probably resulting in an invitation to participate in the conference under Item 4. This clear statement of Institute support for autonomous professional practice by qualified clinical chemists will prove of considerable assistance to the Committee in dealing with certain problems encountered by practicing clinical chemists and in recommending appropriate courses of action to the Institute.

On October 31, 1959 in a circular (3) letter to all medical technologists registered by the Registry of Medical Technologists of the American Society of Clinical Pathologists, Dr. Lall G. Montgomery, chairman of the ASCP Board of Registry, announced, among other matters, that the Board had approved insignia for all persons registered by the Registry and that "the jewelry and emblems will be the same design which we now use for Medical Technologists and Hystologic Technicians, except that the term Blood Bank Technologist, Chemist, Cyto-technologist or Micro-biologist will be used." This Committee considered that this action was inimical in various im-

portant ways to the interests of all chemists and of clinical chemists in particular. In principle, we believe, the conferring of the title "Chemist" by the Registry or any similar organization is contrary to sound tradition, desirable practice, and the public interest and represents an unwarranted and untenable assumption of authority of far-reaching importance. Additionally, the lumping of the traditionally professional chemist designation into a single category with technicians and technologists both historically and factually of a completely different occupational classification represents a serious and undesirable development which could not be allowed to go unchallenged. Finally, the departure by the Registry of Medical Technologists from its prior functions of registering sub-professional personnel into the area of certifying persons bearing professional titles is a matter worthy of the attention of the chemical profession.

The Committee solicited advice and assistance from the Institute President, and Dr. Kuhn contacted Dr. Montgomery in November 1959 inquiring regarding the possibility of reviewing the situation with respect to chemists and the above Board of Registry actions. A reply by Dr. Montgomery under date of November 30, 1959 carried certain statements contrary to fact, included the interesting claim that "It has been the attitude of the Board of Registry that the Registry is a cer-tifying body . . ." and completely avoided direct or indirect reply to the questions raised by Dr. Kuhn or the comments made. The Committee feels that a very serious problem is involved here, which may represent an attempt to achieve oblique domination of chemists by certain pathologist groups. It happens that a condition of receiving registration by the Registry of Medical Technologists is the agreement by the prospective registrant to work subsequent to registration only under the direction or supervision of a pathologist or other physician. We feel it would be contrary to public policy and public welfare, as well as completely contrary to the sound and established policies of the profession of chemistry to allow third parties unchallenged to confer the title "Chemist" upon parties of their own choosing according to their own criteria and furthermore, by such action to place these individuals into a category of workers pledged to work only under the direction or supervision of physicians and to conduct training of others in their occupational classifications only under such medical supervision.

Vigorous and forthright additional action by the Institute and other interested chemical organizations appears clearly indicated to establish and maintain a more reasonable attitude and approach by the Registry of Medical Technologists in this matter and to obtain a revision of their policies in this matter. Our interest in this matter is continuing and we shall have further recommendations to present to the Institute.

(4) The Institute was invited to send a representative to a Meeting with Allied Scientists of the American Medical Association Committee to Study the Relationships of Medicine with Allied Health Professions and Services in Chicago on March 20, 1960; and Dr. Kuhn designated the chairman of this Committee to attend on behalf of the Institute. A pleasant, most cordial and worthwhile meeting resulted during which the Institute was able to present certain of its views regarding interprofessional relationships between chemists and physicians to the AMA Committee in the form of an invited individual statement and a joint statement with the American Chemical Society and the American Association of Clinical Chemists. One matter touched upon in our statements was a proposed AMA Committee recommendation to the AMA House of Delegates which was so worded as to include any and all activities in the prevention of nervous, mental or physical illnesses or disorders in a category of services to be performed only under the general supervision of a qualified phy-

A representative group of microbiologists, chemists, physiologists, spychologists, bioanalysts and other professional workers in public health and related areas attended the March 20, 1960 meeting and presented recommendations which, in general, coincided in advocating that some form of liaison organization representing both the medical profession and the other health professions be created and charged with monitoring areas of interprofessional difficulties with the objective of resolving disputes, widening areas of agreement, and fostering better communi-

COMMITTEE ON CLINICAL CHEMISTRY

cations. Specific agreement was reached by all present at the meeting regarding the responsibilities of the several separate health professions for establishing and maintaining standards by autonomous voluntary actions carried out by each profession, preferably through certifying boards or similar accrediting agencies.

Finally, the Committee desires to acknowledge and record its very great appreciation of the very close and very effective support and personal attention it has received from the Institute President, Dr. Kuhn, during the past year. This support and the many positive actions taken by Dr. Kuhn have, we feel, helped measurably in delineating and solving certain current problems facing clinical chemists and in establishing firmly the leadership of the Institute in the analysis of these matters and in the resolution of such problems.

-DR. KURT M. DUBOWSKI, Chairman

State Employment Services for Professionals

The Bureau of Employment Security, U. S. Department of Labor, Washington 25, D.C., has recently expanded its services for the placement of persons in professional and scientific occupations. At present the 1800 local State Employment offices offer the following services:

 Provide placement services for all types of professional workers —including engineers, scientists, technicians, and managers.

(2) Match the education, experience, and desires of the applicant against the requirements of the job through the use of the most modern interviewing and testing techniques.

(3) Through a nationwide clearance system, maintain a current list of all professional and managerial job vacancies filed with Employment Service Offices. This includes a professional placement network of 100 selected offices to expedite the filling of professional openings.

(4) Furnish labor market information about job openings on a local, State, and national basis. This information pin-points the geographical areas where professional workers with specified skills and training are needed.

The Bureau of Employment Se-

curity is also urging the State Employment Security Agencies to make an effort to get employers to interview job applicants on the basis of their abilities regardless of age.

Readers of THE CHEMIST who may be seeking placements are invited to consult the local office of the State Employment Service, which may be found in the telephone directory under: (State name) State Employment Service.



Completely staffed with over 100 specialists, equipped with 10 stories of laboratories, backed by 36 years of experience in many fields:

Product Development - Analyses Engineering - Market Research Physical Measurement - Toxicology Bacterielogy - Animal Work Food Technology

Bulletins and detailed information on request without obligation. Call WAtkins 4-8800 or write to:

FOSTER D. SNELL, INC. 29 W. 15 St., N.Y. 11, N.Y.

Friends Departed

The National AIC Council observed a moment of silence at its June 21 meeting, in memory of the following deceased members:

Francis J. Curtis, Hon. AIC., retired vice president for personnel and former member of the Board of Directors of Monsanto Chemical Co., St. Louis, Mo., died April 21, 1960, one day before his 66th birthday. He had been with Monsanto for 44 years. He was born in Cambridge, Mass., and received the A.B. degree from Harvard. For six months in 1951 he served as assistant administrator of the National Production Authority. He was past president of the Society of Chemical Industry, and of the AIChE; a past vice chairman of the AAAS, and past chairman of the ACS Division of Industrial and Engineering Chemistry. In 1959 he received the Founders Award of the AIChE: in 1951 the honor award of the Commercial Chemical Development Association; and in 1954, Honorary Membership in the AIC. He joined the AIC as a Fellow in 1945.

Mark F. Finley, Life Member of the AIC, a patient since 1935 at the U. S. Veterans Administration Facility Hospital, Perry Point, Md., died there in May, 1960. He was born in Washington, D.C., Aug. 11, 1889. He held the A.B. degree from the University of Michigan and had done graduate work at Georgetown and George Washington Universities. He taught chemistry in high schools in Washington, D.C. He was a Captain in the Chemical Warfare Service, O.R.C., in World War I. He abstracted German literature on gases and also all the Spanish and Italian literature on the ductless glands which appeared between 1898 and 1918.

Salvatore J. Gaudiello, M.A.I.C., chief chemist, U. S. Coatings Co., New York 59, N. Y., died Jan. 16, 1960. He was born in Long Island City, N. Y., March 26, 1908. He studied at Pratt Institute and New York University, specializing in paint, varnish and lacquer techniques. Before joining U. S. Coatings Company, he was chief chemist for Thibaut & Walker Co., Long Island City, and later a member of the technical research division of Basic Varnish & Research Corp., Brook-

lyn, New York.

Dr. Donald G. Kundiger, F.A.I.C., associate professor of chemistry, Kansas state College, Manhattan, Kansas, died Feb. 10, 1960. He was born July 28, 1913. He received the B.S. and Ph.D. degrees from the University of Wisconsin. He had been an organic chemist for Alumni Research Foundation, University of Wisconsin, and for Rohm & Haas Co., Philadelphia. He was a patent agent for Shell Development Co., before devoting himself to teaching. He was the author of several journal articles and patents in the organic field.

Dr. Ralph E. Lee, Charter Member of the AIC (elected Fellow in 1923), retired director of the Department of Applied Research of Standard Brands, Inc., New York, N. Y., died Dec. 4, 1959. He was born Jan. 16, 1876 in Chelsea, Mass. He held the M.D. from Harvard Medical School. He specialized in fermentation and the chemistry of nutrition. By 1923 he was director of the Research Division, Sales Promotion Department of the Fleischmann Co. (later taken over by Standard Brands, Inc.). He was a councilor of the AIC during its early years. At the time of his death he lived at Douglaston, N. Y.

Vincent Francis McDonough, M.A.-I.C., analytical chemist for General Electric Co., Cleveland 10, Ohio, died January 7, 1960. He was born July 20, 1922, at Cleveland, Ohio. He held the B.S. degree from Western Reserve University and had done graduate work in spectroscopy at John Carroll University. He joined General Electric in 1947.

Dr. Daniel P. Norman, F.A.I.C., director of research, New England Spectrochemical Laboratories, Ipswich, Mass., died March 10, 1960. Born Mar. 10, 1915, in Boston, Mass., he held B.S. and M.A. degrees from Boston University and the Ph.D. from Harvard. He specialized in spectrophotometry, absorption spectrometry, Raman spectra, free radical lifetimes, and was the author of many publications in these fields. He joined the New England Spectrochemical Laboratories in 1939, after instructing at Harvard for a year.

Gustave H. Rapaport, F.A.I.C., president, Food Products Corp., Kansas City, Kansas, died in March 1960. Born in Austria, March 26, 1900, he was naturalized in Kansas City, Mo. in 1945. He was educated at the University of Vienna. From 1941 to 1943 he was with Sperry, Young, Kevan, Inc., Kansas City, Mo., and left to found Food Products Corp., and Midland Food Laboratories. He held U. S. and Austrian patents in the field of colloid chemistry.

Dr. Vanston H. Ryan, F.A.I.C., chairman of the Division of Natural Sciences and Mathematics, Rockhurst College, Kansas City, Mo., and chairman of the Midwest AIC Chapter, died May 27, 1960. He was born July 24, 1904 at West Mineral, Kansas. He held the A.B., A.M., and Ph.D. degrees from Kansas University, specializing in organic chemistry. After a year as instructor at the Salvatorian College, St. Nazienz, Wis., he spent 34 years at Rockhurst College. In 1959 he was the first recipient of the Rockhurst College Chancellor award, named to honor the college patron, Sir Thomas More, Chancellor of England. He was active in professional activities and served on many college committees and boards, and in the technical societies. During World War II, he was appointed head of the chemical warfare division of the civil defense organization in Kansas City. He was a Major in the Chemical Corps Reserve, and lectured extensively to military and civilian audiences on specialized phases of chemistry.

Robert V. Siebel, M.A.I.C., research engineer, Continental Can Co., Chicago, Ill., died April 13, 1960. He was born April 25, 1915 in Chicago, Ill. He attended Lewis Institute, and received the B.S. and M.S. degrees in chemical engineering from Purdue. He was associate director of E. A. Siebel & Co. of Chicago, and later president of Siebel Central Labs., Inc., of Northfield, Ill., until he joined Continental Can Co. in 1957.

Dr. Paul John Witte, F.A.I.C., director of research, Russell Reinforced Plastics Corp., Lindenhurst, N. Y., died April 7, 1960. Born September 16, 1908, he received the A.B., M.A., and Ph.D. degrees from Columbia University. He

taught at Columbia for 5 years, followed by research work for Fales Chemical Co., and Pease Laboratories, Inc., and then as assistant to the technical director of Lucius Pitkin, Inc., New York, N. Y. In 1939 he became chief of the Bureau of Standardization, Central Testing Laboratory of the Department of Purchase, City of New York, until he joined Russell Reinforced Plastics Corporation.

Opportunities

Doris Eager, M.A.I.C.

Positions Available

Polymer, Resin, Coatings, or Adhesives Chemist needed in metropolitan New York area. Salary open. Box No. 91, The Chemist.

Associate Director of Research and Development, Prefer advanced degree in chemistry or chemical engineering, and ten years of practical, industrial, organic research on diversity of problems. East Coast chemical company. \$12,000-16,000 range. Box 93, The Chemist.

Vacancies exist at the Chemical Corps Biological Laboratories, Fort Detrick, Maryland, in physical and biological fields. Request information from Civilian Personnel Office, Fort Detrick, Frederick, Maryland.

Assistant Technical Director. Souththern plant. Synthetic fibers. Ph.D. preferred. Salary to \$20,000. Box 95, The Chemist.

AIC members seeking positions may be listed here without charge.

LABORATORY SERVICES for the FOOD and DRUG INDUSTRIES



DRUG EVALUATION, FOOD ADDITIVE STUDIES, CHEMICAL ASSAYS, BIOLOGICAL ASSAYS, CLINICAL STUDIES, RESEARCH

LAWALL & HARRISSON

Communications

On "The Path to Professionalism"

To the Editor:

Referring to the reprint of an article, by Elton Fisher, in The Chemist, May 1960, under the subhead "Which Shall We Choose," p. 173, I have several suggestions in addition to the most important factor of publicity and public relations mentioned.

Much discussion about professionalism boils down to one basic factor. Once that is cleared all sides agree. This basic factor is a definition of what chemistry or chemical engineering is, and above all what IS a chemist or chemical engineer.

The first step must be to enter the definition of chemist and chemical engineer into the law books of each state, thus protecting the public from anyone not so qualified from representing himself as such. Any offense against this law is a misdemeanor and punishable by law. This seems to me to be the ideal solution to the problem: It protects the public, elevates the profession, and obviates the setting up of laborious boards, administrations, etc., necessary for licensure and/or registration procedures, as well as the issuance of certificates of one kind or another.

The only remaining problem to solve is the wording of such a definition. Using other existing examples, on record for years and proven to be successful, is a stepwise procedure which initially is most inclusive so as not to hurt anyone studying or practicing as a chemist or chemical engineer now.

As a basic example, my thoughts of a definition are:

(1) Any person who is known as a chemist or chemical engineer before the year 1960 through his job classification, or otherwise, and/or who is a member before the year 1960 of The American Institute of Chemists and/or the American Chemical Society, and/or the American Institute of Chemical Engineers, and/or any other similar national professional organization; AND,

(2) Any person who holds a Baccalaureate degree in chemistry or any branch of chemistry earned before the year 1965 from an institution of learning which is accredited by the American Chemical Society, and/or the American Institute of Chemical Engineers, and/or the Association of American Universities; AND,

(3) Any person who holds a Master's degree in chemistry or any branch of chemistry earned before the year 1970 from a University or institution of higher learning which is accredited by the ACS, and/or the AIChE, and/or the AAU; AND

(4) Any person who holds a Doctorate of Science or Philosophy in chemistry or any branch of chemistry earned before or after the year 1975 from a university or institution of higher learning, accredited as above.

The exact requirements to be aimed at and to begin with as well as the number of years to be allowed for transition is open to debate, but should be no stumbling block.

The AIC could help in materializing such a plan by forming a national

committee consisting of representatives of all the chapters representing all the states (where chapters cover more than one state, more than one representative could be on that committee so that each state is represented) or expand the existing professional relations committee to include all states. These committee members would agree on basic principles, definitions, ways of approach to legislative bodies in their own states, and would help each other with their own experiences. They would go back to their respective states and propose legislation in accordance with the plan discussed. They would form their own hard working local committees.

It is these local committees who will carry the brunt of the burden, and they must consist of wise, dedicated people, who if possible, have knowledge of legislative procedure. To find and place these members in each state will be the hardest task but it must be done.

This letter is written with the full knowledge of Howard J. Horn, chairman of the committee on professional relations and status of the Southern California Section of the American Chemical Society. This committee has discussed the problem many times and is presently working along similar lines.

-Dr. Otto E. Lobstein, F.A.I.C. Chem-Tech Laboratories Beverly Hills, Calif. To the Editor:

I appreciate your reprinting "The Path to Professionalism," (May 1960 CHEMIST), because THE CHEMIST has nation wide circulation. I have received letters with favorable comment from several people who read "Professionalism" in THE CHEMIST.

-Elton Fisher Memphis 11, Tenn.

Responses to "I Must Vigorously Protest"

To the Editor:

I read the "I Must Vigorously Protest" article (CHEMIST, May 1960) and found it very interesting.

It seems to me that there is a point of confusion with the use of the term "drug industry." Dr. Max Tishler reads this to mean the scientific human beings thereof, whereas the Kefauver Committee means by this term the corporations making and selling drugs . . . The protest should be made by corporations since the Kefauver attack is against corporation practices in the drug manufacturing field.

Corporations are legal beings in their own right. They are known in the law as "artificial persons" or ersatz persons.

Surely when the selling price of a drug is made, it is not made by the scientist employees of the ersatz person since they have nothing to say about the selling price of the drug nor of the sales promotion methods employed.

In closing Dr. Tishler states:

"We know that if the scientific integrity of one group of dedicated scientists is attacked with impunity, the dignity of all science will become degraded. If one group of scientists can be tarred and feathered without vigorous protest then we are all slandered."

But as stated previously the Kefauver investigation is of corporation practices in the drug field, not of the scientists. Probably Dr. Tishler errs because he is not a student of the law but a scientist.

The most recent Kefauver investigation as read today (May 14, 1960) relates to the use of scientific names of the drug used by physicians in place of the brand or trademark names used by the drug corporations for the scientific chemical employed.

Thus penethicillin, a scientifically identified substance, is sold by different corporations as Alpen, Chemipen, Darcil, Dramcillin-S, Maxipen and Syncillin. But no matter how you spell it—it is still penethicillin. Is it any wonder that Dr. Walter Modell of the New York Hospital requires the exclusive use of scientific names in prescriptions?

It is an unscientific practice, albeit a wise corporation practice, to sell a specific scientific compound under many brand names, one for each corporation. It adds mystery to the product and, of course, with an increase of price. To identify a product as a Lilly penethicillin, Squibb penethicillin, etc., may lead to severe price competition which is an unwanted practice in a free enterprise society.

-Dr. Frank Makara, F.A.I.C.

To the Editor:

I Must Protest Also! (May 1960 CHEMIST, Article, "I Must Protest Vigorously!") May I suggest that the Fellows of the AIC read the newspaper report (Buffalo Evening News, May 12, 1960) entitled "Week in Hospital—Drug Bill \$676." It is one of the things Mr. Kefauver is trying to stop.

I would suggest your members go to your M.D. friends and tell them they want a Prescription in Latin for a 6 oz. bottle of tap water, to be taken 1 teaspoonful in a glass of water, every 3 hours. Then take it to their pharmacy and find out for themselves what they will pay for the prescription and report the cost to The Chemist.

Mr. "E" our President, has done everything he can to help the aged and aged sick by increasing pensions . . . Consider the plight of a single person supporting a mother or father on the single person's Social Security . . . aged parents need drugs too!

-B. B. Seafield

Niagara Falls, N. Y.
Editor's Note: The article by Dr. Max
Tishler protested against that testimony,
given before the Kefauver Committee,
which stated that laboratory research
in the American drug industry was
negligible and was centered only on
exploiting and marketing of foreign
discoveries.

Comment on The Chemist

To the Secretary:

I enjoyed reading the issues of THE CHEMIST... On the whole, the articles were very interesting, illuminating, and creditable to the chemical profession.

-Joseph F. Saunders, Ph.D. Washington 25, D.G.

Correction

In the June issue of THE CHEMIST, page 194, it was announced that "Dr. Albert E. Brown and Dr. Donald B. Keyes were elected as representatives of the AIC by the Scientific Manpower Commission." The first name of Dr. Brown is Alfred, not Albert.

For Your Library

Cosmetic Science

A. W. Middleton, F.R.I.C., Ed. Butterworth and Co. (Canada), Ltd., Toronto, 1959. 5½ x 8½; xvi + 327 pp. \$12.00 This book comprises the proceedings of a Congress organized by the Society of Cosmetic Chemists of Great Britain, held at University College, London, in April, 1959.

General topics for four sessions were:
(1) Analysis of Raw Materials; (2) Assessment of Finished products; (3) Manufacturing or Processing; (4) Biological Assessment. Four pertinent papers were presented during each session, and to the well-documented text of each paper has been added the lively and interested discussion that followed it.

The book is well printed on good paper, with indexes of subjects and discussers, but more careful editing would have spared the reader annoying errors in typography and spelling.

-FLORENCE E. WALL, F.A.I.C. High Altitude & Satellite

Rockets

A Symposium by the Royal Aeronautical Society, the British Interplanetary Society and the College of Aeronautics held at Cranfield, England, July 18-20, 1957. The Philosophical Library, Inc. 1959, 136 pp. \$15.00

Held before satellites had been put into orbit, this symposium was planned to give scientists and engineers some of the basic facts in the new science of astronautics. The theme was selected to fit in with some of the interests of the IGY; scientists who attended included American, Russian, French, Belgian, Italian, Polish, German, Canadian, Norwegian, Dutch, as well as British specialists.

The principal topic was the peaceful uses of high rockets, but papers were included on many aspects of rocket development and on some of the problems involved in space flight. Launching vehicles and recovery after re-entry, problems of instrumentation and of high altitude, problems of respiratory metabolism in sealed cabins, and the psycho-physiological hazards of satellite flight are among the most interesting studies. Short biographical studies of the twelve lecturers are included in the book as well as reports of the discussions following the papers.

For anyone in the field of aeronautics this is a valuable reference book; for scientists eager to know more about this "new frontier" it is a treasure-trove of suggestive material.

-Dr. Frederick A. Hessel, F.A.I.C. Biochemical Preparations

Vol. 7. Henry A. Lardy, Editor-in-Chief. John Wiley & Sons, Inc. 1960. 102 pp. 6" x 91/4". \$5.25

This volume covers the preparation of 20 different compounds, all important in biochemical research. Methods appearing in this useful series were checked by experts prior to their acceptance. The procedures are supplemented with a satisfactory bibliography.

-DR. HENRY TAUBER, F.A.I.C.

Extractive Metallurgy

By Joseph Newton. John Wiley & Sons, Inc. 1959. viii - 532 pp. \$9.75

Instead of approaching his subject from the point of view of the individual metals, Prof. Newton discusses the processes of extractive metallurgy as unit processes, thus presenting a unified picture of the whole field that is both logical and useful to one faced with problems to be solved. Basic principles receive major emphasis rather than details of practice that vary widely from plant to plant. The treatment is based on the second part of the author's "Introduction to Metallurgy" and is intended as a text for a first course in extractive metallurgy. Included are discussions of metal crystals, equilibrium diagrams and Gibbs' phase rule, in addition to the subject conventionally covered in such a course. A valuable book containing a vast amount of information in readily available form.

-D. H. KILLEFFER, F.A.I.C.

The Chemistry of Lipids in Health and Disease

H. K. King. Charles C. Thomas, publisher. 1960, 104 pp. 61/4" x 91/2", \$3.75

In this book are presented basic principles concerning the chemical structure and physical behavior of lipids. Stressed are new findings relating to digestion, absorption, metabolism and the multiple roles of lipids in life processes. One chapter deals with lipids in atherosclerosis which is one of the most important unsolved biochemical problems of today.

-DR. HENRY TAUBER, F.A.I.C.

Fundamentals of Physical Chemistry

H. D. Crockford and Samuel B. Knight. John Wiley & Sons. 1959. 463 pp. 81/6" x 51/4". \$6.95

A standard textbook on physical chemistry for students with mathematical training through elementary calculus. This is designed for preliminary groundwork and is formulated as a presentation of fact with a minimum of philosophical approach.

-DR. J. A. STEFFENS, F.A.I.C.

Chemical Books Abroad

DR. RUDOLPH SEIDEN, F.A.I.C.

Verlag Enzyklopaedia, Leipzig: Die USSR, by W. Fickenscher et al; 1959, 1120 pp. (467 ill., 76 maps); DM 24.— Translated from the 1957 Russian edition and supplemented by figures for 1958/9 and official estimates up to 1965, this volume brings detailed information on the USSR's political, economic, and cultural life; especially interesting for us are the chapters on mineral resources, industries, sciences, and education. With elaborate indexes (130 3-column pp.).

The Pharmaceutical Press, London: British Pharmaceutical Codex 1959; 7th ed., 1330 pp.; 70 sh.—The counterpart of the U.S.P., now official in Great Britain, contains monographs providing information on a multitude of drugs, among them many new ones—from acetrizoic acid to tripolidine HC1. Many monographs of products no longer extensively used were dropped. Especially valuable to pharmaceutical chemists everywhere is part 6 of the B.P.C.: the formulary.

Walter de Gruyter & Co., Berlin: Pharmazeutisches Woerterbuch, by C. Hunnius; 3rd ed., 742 pp.; DM 32.—An encyclopedia of thousands of old-established and modern pharmaceutical terms and drugs; with 17 useful tables of antidotes, incompatabilities, doses, measures and weights, units, etc.

Verlag Chemie, Weinheim Bergstrasse.

Optische Daten, by E. Kordes; 1960, 198 pp.; DM 43.—A compilation of optical data for the determination of inorganic substances by polarization microscopy. Hippokrates Verlag, Stuttgart: Lehrbuch der Phytotherapie, by R. F. Weiss;

Hippokrates Verlag, Stuttgart: Lehrbuch der Phytotherapie, by R. F. Weiss; 2nd ed., 408 pp. (122 ill.); DM 56.— Describes medical plants used in a great variety of diseases.

Georg Thieme, Stuttgart (International Medical Book Corp., New York): Methoden der organischen Chemie (Houben-Weyl), Fol. F/4: Halogen-Ferbindungen: Brom und Jod, by E. Mueller; 4th ed.; 941 pp.; \$42.85.—This is the 9th volume of the excellent series; it deals with Br and I compounds and the reactivity and transformation of C1, Br, and I compounds. The indexes fill 118 pp.

Springer-Verlag, Berlin: Rezeptbuch fuer Faserstoff-Laboratorien, by P.-A.

Koch. 1960, 245 pp.; DM 31.50 — A useful laboratory book of procedures and formulas for the microscopic and chemical testing of textile fibers; with many tables.

Georg Thieme, Leipzig: Antikoagulantien, by E. Perlick. 2nd. ed., 447 pp. (108 ill.); DM 55.70 — An authoritative monograph on anticoagulants and their importance for blood-coagulation and control of thromboembolism.

Dr. Alfred Huethig Verlag, Heidelberg: Kosmetologie, by J. S. Jellinek; 1959, 641 pp.; DM 40 — A leading expert discusses for chemists the principles of cosmetology and the manufacture of cosmetics. With hundreds of formulas.

Armand Colin, Paris: La grande industrie chimique de base, by H. Guerin. 1959, 211 pp.; paperbound, F. 450 — Surveys the technology and economics of the S, C1, Br, I, Na, K, Ca, N, and P industries.

Geest & Portig, Leipzig: Gas-Chromatographie, by R. Kaiser; 1960, 233 pp. (125 ill., 17 tables); DM 32 — A treatise on gas chromatography: Theory, equipment, procedures, and interpretation of analytical findings.

Putnam Publishing Co., Chicago 11, Ill., began publication, in June, of What's New in Chemicals, a monthly for chemical producers, distributors and their customers.

The first number of Analytical Biochemistry, an international journal, was released in June by Academic Press, Inc., 111 5th Ave., New York 3, N. Y. Volume I will consist of 6 issues to be released in 1960 at \$15.00.

THE LENTO PRESS, INC.

Distinctive Printing

441 Pearl Street New York, N.Y.

WOrth 2-5977

Arthur D.Little, Inc.

ADL offers experience and capability in:

- · Corporate Planning and Organization
- · Advanced Research and Engineering
- Product Research and Development
- Production Engineering
- . Market Analysis and Sales Planning

ADL scientists and engineers work closely with client organizations in performing assigned work through any desired stage of development.

> Consultants to Industry SINCE 1886

Combindge • New York • Chicago • Washington Sun Francisco • San Juan • Edinburgh

The Institute for Scientific Information, 1122 Spring Garden St., Philadelphia 23, Pa., announces the service, *Index Chemicus*, which reports all newly synthesized chemical compounds within thirty days of their publication in the scientific literature.

Dr. George B. Butler, Professor of Organic Chemistry, University of Florida, spoke on "Caviar, Cameras, and Chemists" at a meeting of the Alabama AIC Chapter, August 25 at the Hotel Russel Erskine, Huntsville, Ala.

Pergamon Press, Inc., New York 22, N. Y., has changed the title of the International Journal of Air Pollution to International Journal of Air and Water Pollution.

About AIC Members

M. R. Bhagwat, F.A.I.C., has accepted a position as chemical engineer in the Research & Development Department of the U. S. Naval Propellant Plant at Indian Head, Maryland.

Dr. Charles N. Frey, F.A.I.C., lecturer at Massachusetts Institute of Technology and at Columbia University, former director of scientific relations, Standard Brands, Inc., received a Distinguished Alumni Award at the 100th Commencement of Michigan State University, East Lansing, Mich., on June 12.

Dr. Lewis F. Hatch, F.A.I.C., of the University of Texas, Austin, Tex., has been appointed lecturer and consultant in petrochemistry at the University of Cairo and the National Research Center. He will be in Cairo, Egypt, from September 1960 to June 1961.

Vincent C. Vesce, F.A.I.C., technical director, Harmon Colors, National Aniline Division, Allied Chemical, presented the Mattiello Lecture of the Federation of Societies for Paint Technology in San Francisco, in May. His subject was "Exposure Studies of Organic Pigments in Paint Systems."

Dr. Herman Wachs, F.A.I.C., research scientist, Fairfield Chemicals, Food Machinery & Chemical Corp., New York, N. Y., has now returned from a two-month tour of Africa's pyrethrum growing regions.

Guy A. Kirton, F.A.I.C., formerly sales manager of the Chemicals Division of Eastman Chemical Products, Inc., Kingsport, Tenn., has been named assistant general manager of the International Division of the company.

John E. McKeen, Hon. AIC, president, Chas. Pfizer & Co., Inc., is chairman of the Ethical Drug Industry Committee of Project HOPE, which is sending a hospital ship to Southeast Asia this summer.

Dr. Emmett B. Carmichael, F.A.I.C., assistant dean of the Medical College and the School of Dentistry, University of Alabama, Medical Center, Birmingham, was honored at a dinner, June 23, in commemoration of his 32 years as chairman of the Biochemistry Department. He was presented with a bound volume containing a complete set of his more than 100 scientific papers.

Dr. A. W. Fisher, Jr., F.A.I.C., has been appointed to executive vice president and Dr. H. H. Reynolds, F.A.I.C., to vice president—research and development, for both Ludlow Papers and Ludlow Plastics, divisions of Ludlow Corporation, Needham Heights, Mass.

Dr. Roger W. Truesdail, F.A.-I.C., president Truesdail Laboratories, Inc., Los Angeles 65, Calif., has returned from a trip around the world. He visited 31 countries.

Dr. Frank Greenspan, F.A.I.C., technical director, Epoxy Department of Food Machinery & Chemical Corp., speaking at the North Dakota Agricultural College Coatings Symposium, in June, said that "paint and coating chemists now have at their disposal a new and unique family of epoxy resins (FMC's Oxiron resins) possessing properties which offer all sorts of interesting possibilities."

Dr. Herman A. Bruson, F.A.-I.C., has been named vice president for research of the Chemicals Division of Olin Mathieson Chemical Corp., New York 22, N. Y. He is located at the new research center in New Haven, Conn.

Dr. Alexander Silverman, Hon. AIC, benefactor of Alfred University and professor of chemistry, emeritus, of the University of Pittsburgh, was honored, June 7, by the faculty and administration of State University of New York College of Ceramics at Alfred University, Alfred, N. Y.

Dr. Herman F. Mark, F.A.I.C., and Dr. Charles G. Overberger, F.A.I.C., both of Polytechnic Institute of Brooklyn, presented papers at the International Symposium on Macromolecular Chemistry, in Moscow, U.S.S.R., in June.

Dr. Roy C. Newton, Hon. AIC, retired director of research of Swift & Co., has been appointed coordinator of utilization research for the U. S. Department of Agriculture.

James W. Perry, F.A.I.C., is transferring, September 1, from the School of Library Science of Western Reserve University to the College of Engineering of the University of Arizona.

Dr. Kenneth W. Newman, F.A.-I.C., general manager of Isotopes Specialties Co., division of Nuclear Corp. of America, Burbank, Calif., announces the appointment of Southwestern Engineering & Equipment Co., of Dallas and Houston, Texas, as its engineering representatives, for labeled compounds and radioactive services.

Dr. Herman S. Bloch, F.A.I.C., has been promoted to the new position of associate director of process research at Universal Oil Products Co., Des Plaines, Ill.

Hillary Robinette, Jr., F.A.-I.C., president, Robinette Research Laboratories, Ardmore, Pa., announces the appointment of Dr. Sallie A. Fisher as associate director of research. Her field is ion exchange chemistry.

P. C. Hereld, F.A.I.C., director, Planning & Development Chemicals Group, Sun Chemical Corp., New York 17, N. Y., has been elected to membership in the Centre d'Information de la Couleur, the American Association of Textile Chemists & Colorists, and the Inter-Society Color Council.

Ernest M. Levin, F.A.I.C., physical chemist with the Constitution and Microstructure Section, National Bureau of Standards, has received a U. S. Department of Commerce Silver Medal for Meritorious Service. He was cited for "very valuable contribution to phase studies by original research and for meritorious authorship."

Samuel B. McFarlane, Jr., F.A.I.C., was appointed vice president research, a newly created position, by Sun Chemical Corporation, New York 17, N. Y.

Edward M. Fettes, Jr., F.A.I.C., is now with the Koppers Co., Inc., Research Department, Box 128, Verona, Pa.

R. Gerald Smernoff, F.A.I.C., is now technical director for Pacific Petrochemicals, Inc., Los Angeles, Calif.

Martin B. Williams, F.A.I.C., of the Army Rocket & Guided Missile Agency, Huntsville, Ala., spoke recently at the Southeastern Industrial Security Field Council at Redstone Arsenal, Ala., on "Science, Sputniks and Security."

Dr. Paul Jewel, F.A.I.C., chief cosmetic chemist for Max Factor & Co., Hollywood, Calif., is on a speaking tour in Hawaii.

Georgia Institute of Technology, Atlanta, sponsored 13 broadcasts this summer on "Men & Science: 1960," Dr. Joseph Iannicelli, F.A.I.C., has joined the Borger Laboratory of J. M. Huber Corporation, Borger, Texas, as senior research chemist. He was formerly with E. I. duPont de Nemours & Co., Wilmington, Del.

Dr. Don H. Rotenberg, A.A.-I.C., received the Ph.D. in Organic Chemistry from Cornell University in June and is now a chemist at Esso Research & Engineering Co., Linden, N. J.

Dr. L. W. Seigle, F.A.I.C., has been appointed manager of chemical development for the National Aniline Division of Allied Chemical, New York 6, N. Y. He joined National Aniline in 1939.



Professional Appointments

Sept. 11, 1960. New York, N. Y. Hotel Roosevelt, Madison Avenue at 45th St. Meeting of the National AIC Council and Board of Directors at 5:30 P.M.

Sept. 12, 1960. New York, N. Y. Hotel Roosevelt, Madison Avenue at 45th St. Social Hour for members of the AIC and their friends in the Vanderbilt Suite 3, 4, and 5, at 5:30 P.M.

Sept. 21, 1960. Baltimore, Md. Meeting of Baltimore Chapter. Speaker, AIC President, Dr. Milton Harris. For information: R. C. Crippen, Crippen Labs. Division of Foster D. Snell, Inc., 1500 Guilford Ave., Baltimore 2, Md.

Sept. 28, 1960. Los Angeles, California. Los Angeles Athletic Club, 431 W. 7th St. Meeting of Western Chapter. Presentation of Honor Scroll to Dr. Roger W. Truesdail, President, Truesdail Laboratories, Los Angeles 65, Calif. Dinner at 7:00 P.M. For information, Stuart R. Garnett, Chairman, Western Chapter, 506 W. Almond St., Compton 4, Calif.

Sept. 29, 1960. New York, N. Y., The Chemists' Club, 52 E. 41st St., Meeting of New York Chapter. Speaker, Carl Setterstrom, F.A.I.C., Assistant to the President, Avison Corp., Philadelphia, Pa. Subject: "The Successful Project" (Part of the theme, "What Every Chemist Should Know about the Chemical Business.)

Oct. 4, 1960. Niagara Falls, N. Y. Red Coach Inn. Meeting of Niagara Chapter. Dinner 6:30 p.m. Meeting 8:00 p.m. Speaker, Peter Casella of Hooker Chemical Co. Subject: The U. S. Patent System.

Nov. 16, 1960. New York, N. Y., The Chemists' Club, 52 E. 41st St., Meeting of New York Chapter. Speaker: George Polzer, Executive Vice President, Ultra Chemical Works, Paterson, N. J. Subject: "Purchasing—its Importance to the Project." (Part of the theme, "What Every Chemist Should Know About the Chemical Business.")

Dec. 6, 1960 (Tentative) Niagara Falls, N. Y. Meeting of Niagara Chapter. Speaker: Dr. Milton Harris, AIC President. For information: Dr. J. Frederic Walker, c/o E. I. du Pont de Nemours & Co., Niagara Falls, N. Y. Jan. 19, 1961. New York, N. Y., The Chemists' Club, 52 E. 41st St. Meeting of the New York Chapter. Speaker, Robert Kampschulte, Vice President, Sales, Celanese Chemical Co., New York, N. Y. Subject, "Marketing." (Part of the theme, "What Every Chemist Should Know about the Chemical Business.)

Feb. 10, 1961. New York, N. Y. Place to be announced. Joint AIC-ACS meeting under the auspices of the ACS. Subject and speakers to be announced.

April 20, 1961. New York, N. Y. Place to be announced. Meeting of New York Chapter. Presentation of Honorary AIC Membership to Dr. Lloyd Van Doren, retired AIC Secretary. Subject of discussion, "Chemical Patent Procedure."

May 11-12, 1961. Washington, D.C. Statler Hotel, 38th Annual AIC Meeting. The Washington Chapter will be our host.

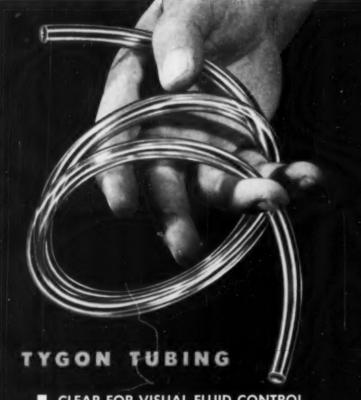
May 25, 1961. New York, N. Y. Place to be announced. Presentation of the Honor Scroll of the New York Chapter. Honoree and details to be announced.

The European Congress of Chemical Engineering and ACHEMA Congress 1961 will be held June 9-17, 1961, in Frankfurt am Main, Germany.

The Brooks Rotameter Co., P.O. Box 432, Lansdale, Pa., has changed its name to Brooks Instrument Co., Inc.

The Fluorocarbon Company is moving to new and larger quarters at 1754 South Clementine Ave., Anaheim, Calif.

Alco Products, Inc., has located its New York, N. Y., executive and sales offices at 530 Fifth Avenue.



- CLEAR FOR VISUAL FLUID CONTROL
- **FLEXIBLE FOR EASY HANDLING**
- SAFE FOR SENSITIVE SOLUTIONS

*in a full range of sizes at your laboratory supply house.

U. S. STONEWARE AKRON 9, OHIO

